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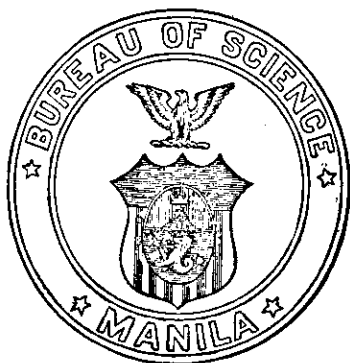
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# THE PHILIPPINE JOURNAL OF SCIENCE

D. GENERAL BIOLOGY, ETHNOLOGY,  
AND ANTHROPOLOGY

VOL. XIII

JANUARY, 1918

No. 1

## NEW OR NOTEWORTHY PHILIPPINE BIRDS, II

By RICHARD C. MCGREGOR

(From the Section of Ornithology and Taxidermy, Biological Laboratory,  
Bureau of Science, Manila)

THREE PLATES AND TEN TEXT FIGURES

This paper includes a record of the monkey-eating eagle from a new locality in Luzon, comments on several species of terns and shore birds, and notes on some other Philippine species of more or less interest.

*Megapodius cumingi* Dillwyn.

The tabon is so seldom seen in Luzon that the fact of its breeding in Tayabas Province, as verified by the egg that was received with the following letter, seems worthy of publication:

GUMACA, TAYABAS, Mar. 25, 1911.

While working in the woods about six miles from Gumaca yesterday a native called my attention to a small hole in the ground in which he said a bird had a nest, and after digging about five feet I came upon four eggs, one of which I am mailing you under separate cover.

The eggs were laid on a mass of rotting wood and mold and all around the hole was the same thing. I presume the heat generated by the decaying stuff is the means of hatching the eggs. \* \* \*

JOHN W. WILLEY,  
Constructing Lineman,  
Bureau of Posts.

*Leucotreron merrilli* McGregor. Plate I.

*Leucotreron merrilli* MCGREGOR, Phil. Journ. Sci., Sec. D (1916),  
11, 269, fig. 1.

After I had written the description of Merrill's fruit pigeon, Mr. E. E. Schneider told me of a living pigeon in his possession

that he had been unable to identify. Upon calling at his house, I was surprised to find that Mrs. Schneider had a specimen of *Leucotreron merrilli*. This bird was secured at Albay, Luzon, where cage birds of this species are sold to people on passing steamers. The birds are doubtless snared in the vicinity of Albay. Mrs. Schneider kindly allowed us to photograph this bird and to make color notes of the unfeathered areas, which were used by the artist in the colored drawing (Plate I) that is reproduced with this paper.

This species and the closely related *Ptilopus marchei* seem to form a distinct section, or subgenus, of *Leucotreron*, distinguished especially by the decomposed and lengthened barbs on the secondaries. I propose that this subgenus be called *Neoleucotreron*, with *Leucotreron merrilli* McGregor as its type.

TABLE I.—Measurements of *Leucotreron merrilli*.

| Bureau of Science No. | Locality.           | Date.         | Sex. | Wing. | Tail. | Exposed culmen. | Tarsus. | Middle toe with claw. |
|-----------------------|---------------------|---------------|------|-------|-------|-----------------|---------|-----------------------|
|                       |                     |               |      | mm.   | mm.   | mm.             | mm.     | mm.                   |
| *7633                 | Paete, Laguna.....  | June 12, 1915 | ♂    | 165   | 125   | 15              | 28      | 39                    |
| 7635                  | .....do.....        | June 14, 1915 | ♂    | 161   | 130   | 18              | 21      | 38                    |
| 7634                  | .....do.....        | .....do.....  | ♀    | 155   | 115   | 17              | 23      | 37                    |
| 7648                  | .....do.....        | June 27, 1915 | ♀    | 161   | 120   | 14              | 21      | 37                    |
| 7172                  | Polillo Island..... | Oct. 19, 1909 | ♀    | 161   | 119   | 17              | 24      | 36                    |

\* Type specimen.

#### *Hydrochelidon leucoptera* Temminck.

A small, immature female tern from Palawan has been identified by Dr. C. W. Richmond as *Hydrochelidon leucoptera*. This specimen (No. 7248) was collected on September 19, 1910, in Ulugan Bay, south of Malampaya Sound, on the west coast of Palawan Island. Although this species has a very wide range both north and south, the only previous Philippine records refer to Mindanao.

From time to time I have recorded several species of terns from the Philippine Islands, the specimens of which I had identified by means of descriptions only. As many of these records as well as those of several species of other water birds are important, I have sent the specimens to Washington, D. C., for verification of my identifications. Dr. Charles W. Richmond, assistant curator of birds, United States National Museum, has kindly given me his opinion as to the correct names of these

specimens. Several records are republished here in order fully to authenticate them.

*Sterna hirundo* Linnæus.

*Sterna fluviatilis* MCGREGOR, Bull. Phil. Mus. (1904), No. 4, 12 (Calayan); MCGREGOR and WORCESTER, Hand List (1906), 20.

*Sterna hirundo* MCGREGOR, Man. Phil. Bds. (1909), 89.

On October 21, 1903, I killed a subadult male example (No. 3685) of the common tern from a pair flying near the beach in Calayan Island, north of Luzon. I recorded this specimen as *Sterna fluviatilis*. Dr. C. W. Richmond has marked "hirundo" on the tag, which is the preferred name for this species. No other tern was seen on Calayan, nor has this species come into the Bureau of Science collection again.

*Sterna gracilis* Gould.

*Sterna gracilis* GOULD, Proc. Zool. Soc. London (1845), 76 (the Houtmann's Abrolhos, off the western coast of Australia); Ann. & Mag. Nat. Hist. (1845), I, 16, 346 (reprint of the above); Proc. Zool. Soc. London (1847), 222 (the same species described again!); Ann. & Mag. Nat. Hist. (1848), II, 2, 282 (reprint of the last description); SHARPE, Hand-List (1899), 1, 135.

*Sterna dougalli* SAUNDERS, Cat. Bds. Brit. Mus. (1896), 25, 70 (description, including *gracilis*).

A pair of terns (No. 13156, male, and No. 13157, female) collected by Messrs. D. C. Worcester and A. Celestino on July 13, 1910, on a sand bar in Green Island Bay, Palawan Island, was doubtfully marked *dougalli* by me. Dr. C. W. Richmond has examined the male specimen and pronounces it *gracilis*. Australian ornithologists use Gould's much-published name, either specifically or subspecifically, and the English name graceful tern for this Oriental form of *Sterna dougalli*. The type locality of Gould's species is the Houtmann's Abrolhos, off the western coast of Australia. Saunders says of *Sterna dougalli*, with which he units *S. gracilis*: "This is essentially a Sea-Tern, usually depositing its eggs on low islands, though sometimes, on sandy coasts."

*Sterna anætheta* Scopoli.

*Sterna anæthetus* SCOPOLI, Del. Flor. et Faun. Insubr. (1786), 2, 92 (Panay Island).

*Melanosterna anætheta* BLYTH, Journ. As. Soc. Bengal (1846), 15, 373; cf. MATHEWS, Bds. Australia (1912), 2, pt. 4, 395; OBERHOLSER, Auk (1917), 34, 199 (question of genus).

*Sterna anætheta* WORCESTER, Phil. Journ. Sci., Sec. A (1907), 2, 275 (Didicas Rocks); MCGREGOR, Man. Phil. Bds. (1909), 91.

*Sterna anætheta*, A. O. U. Check-List, 3d ed. (1910), 46.

Worcester recorded the bridled tern from Didikas Rocks, north of Luzon. My identification of a female tern (No. 6523) killed by Mr. Worcester at the above locality has been confirmed by Dr. C. W. Richmond.

*Sterna fuscata* Linnaeus.

*Sterna fuliginosa* WORCESTER and BOURNS, Proc. U. S. Nat. Mus. (1898), 20, 552 (Siquijor, in distribution list); MCGREGOR and WORCESTER, Bur. Govt. Laboratories (1906), No. 36, 21; WORCESTER, Phil. Journ. Sci., Sec. D (1911), 6, 171, Pl. IV (Maeander Reef).

*Sterna fuscata* MCGREGOR, Man. Phil. Bds. (1909), 92.

*Onychoprion fuscatus* (LINNÆUS), cf. MATHEWS, Bds. Australia (1912), 2, pt. 4, 388; OBERHOLSER, Auk (1917), 34, 199 (question of genus).

A male specimen (No. 7263) of the sooty tern from a series collected by Worcester, McGregor, and Celestino on Maeander Reef, Sulu Sea, on September 22, 1910, has been examined by Dr. C. W. Richmond.

*Sterna sinensis* Gmelin.

*Sterna sinensis* MCGREGOR, Man. Phil. Bds. (1909), 92, 727 (Polillo); Phil. Journ. Sci., Sec. D (1910), 5, 106.

I collected four specimens of this little tern on Polillo Island on September 7, 1909, and one of these (No. 6959) has been examined by Dr. C. W. Richmond. Dr. and Mrs. H. C. Curl collected a male (No. 12933) of this species in Cavite Province, Luzon, on October 10, 1909. Another specimen of a male (No. 13191) was secured by A. Celestino at Obando, Bulacan Province, Luzon, on October 10, 1915.

*Sterna melanauchen* Temminck.

*Sterna melanauchen* MCGREGOR, Bur. Govt. Laboratories (1905), No. 25, 10 (Cresta de Gallo); Man. Phil. Bds. (1909), 93.

Messrs. D. C. Worcester and A. Celestino collected a dozen specimens of *Sterna melanauchen* on July 13, 1910, in Green Island Bay, Palawan Island, where birds of this species were nesting on a small sand bar. One of these specimens (No. 13164) and the one (No. 4502, male) recorded by me from Cresta de Gallo Island, near Sibuyan, have been examined by Dr. C. W. Richmond.

*Ochthodromus veredus* (Gould).

*Ochthodromus veredus* MCGREGOR, Man. Phil. Bds. (1909), 108 (Palawan), 727 (Luzon).

The Eastern dotterel is the rarest of the three Philippine plovers that are commonly placed in the genus *Ochthodromus*.

The other two are abundant and have been found on many of the islands. The Bureau of Science possesses only three specimens of *O. veredus*. Two (No. 13176, male, and No. 13177) were collected by Col. John R. White at Iwahig, Palawan, on July 15, 1908. One of these is a male in summer plumage. The dark chestnut band and the blackish band on the throat and the chest are well developed. The toes and half of the tarsus are missing from the right leg of the specimen, and the collector's tag bears the note: "Shot on plaza. One leg missing when killed." The other specimen, of which the sex is not given, has the bands

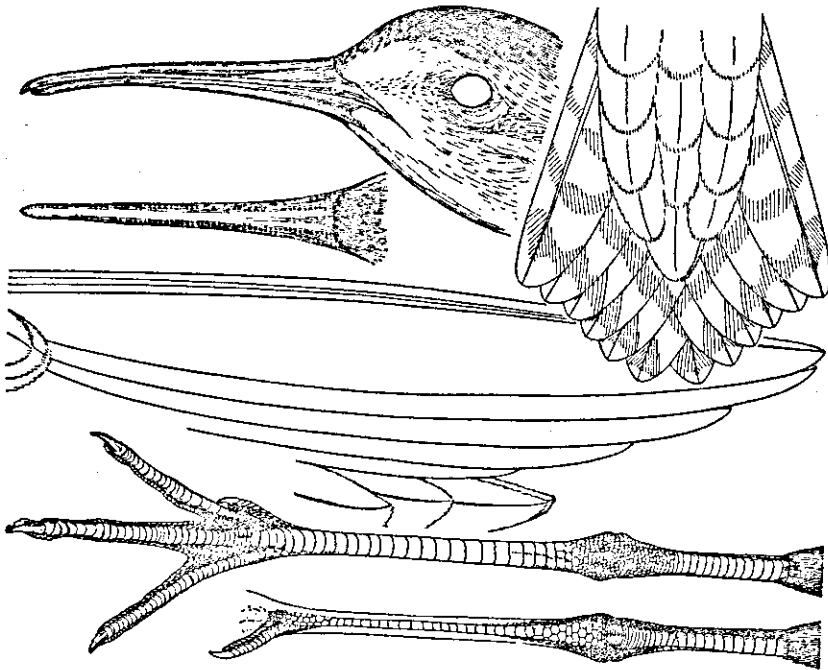


FIG. 1. *Mesoscolopax minutus* (Gould). Actual size.

on the lower throat and the chest pale brown. A female (No. 12931) in immature plumage was collected by Dr. and Mrs. H. C. Curl at Cañacao, Cavite, Luzon, on September 11, 1909.

*Mesoscolopax minutus* (Gould). Fig. 1.

*Mesoscolopax minutus* MCGREGOR, Man. Phil. Bds. (1909), 119, 727 (Luzon).

My record of the pygmy curlew for Luzon was based on a female specimen (No. 12932) collected by Dr. and Mrs. H. C. Curl at Cañacao, Cavite Province, Luzon, on October 3, 1909. The specimen was presented to the Bureau of Science.



**Macrorhamphus semipalmatus (Jerdon). Fig. 2.**

*Macrorhamphus semipalmatus* RIDGWAY, Man. N. A. Bds. (1887), 151; BLANFORD, Fauna Brit. India, Bds. (1898), 4, 257.

*Macrorhamphus taczanowskii* SHARPE, Hand-List (1899), 1, 159; WILLIAMSON, Journ. Nat. Hist. Soc. Siam (1916), 2, 62 (Siam, September 1).

A female Oriental dowitcher was collected at Obando, Bulacan Province, Luzon, on October 21, 1912. Measurements of this specimen (No. 13280) are as follows: Wing, 169 milli-

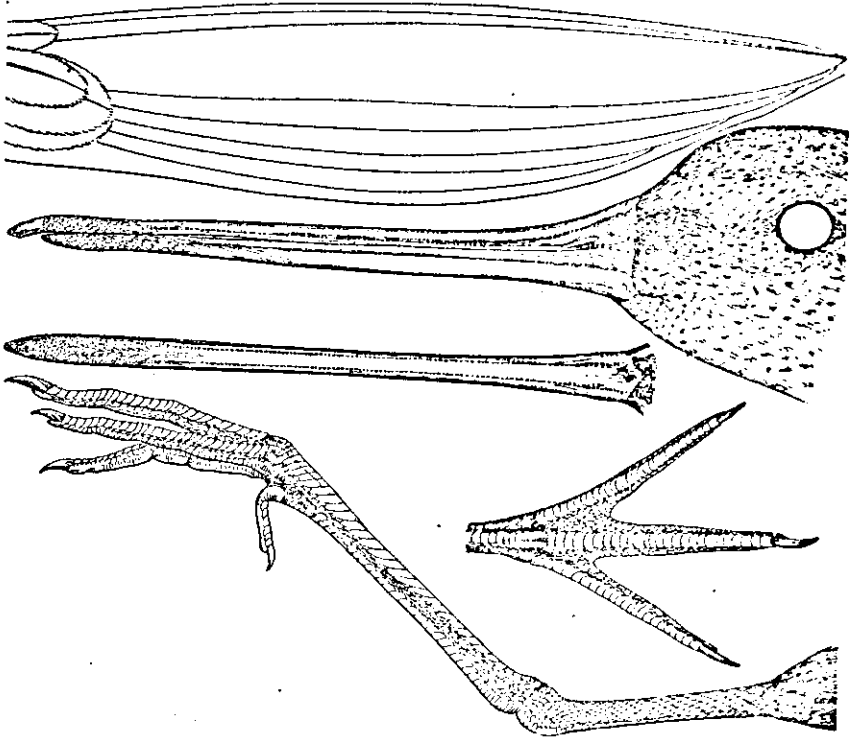


FIG. 2. *Macrorhamphus semipalmatus* (Jerdon). Actual size.

meters; tail, 65; culmen, 84; tarsus, 47; middle toe with claw, 37.

Concerning this species Blanford says:

*Distribution.* This rare bird breeds somewhere in Siberia, its breeding-haunts being, however, unknown, and a very few individuals have been obtained in Mongolia, China, and Japan. [Blanford here cites the following records: One from Madras, four from Calcutta, two from Pegu, one from Rangoon, and one from Raipur.]

*Habits &c.* Not known, but the bird is doubtless a feeder on worms or small crustacea burrowing in the mud. So far as known no Indian specimen, except perhaps Jerdon's, has been obtained on the sea-coast.

This genus is somewhat anomalous in characters. The structure of the bill is exactly as in *Gallinago*, but the length of the bill is as great as in *Philohela minor*. The other characters are those of a large, semipalmated sandpiper. Attempts to express these facts have resulted in *Macrorhamphus* being placed in different positions by different authors. Sharpe and other English writers place *Macrorhamphus* after *Limosa* in the Totaninæ and let *Gallinago*, etc., end the list of the Scolopacinae. The American Ornithologists' Union<sup>1</sup> list begins the Scolopacidae with *Scolopax*, *Philohela*, *Gallinago*, and *Macrorhamphus*; places *Limosa* after *Calidris*; and recognizes no subfamilies in the family of snipes, sandpipers, etc. Ridgway<sup>2</sup> recognizes three subfamilies in this group: Scolopacinae, the snipes; Tringinae, the sandpipers, with *Macrorhamphus* near the end next to *Limosa*; and Numeninae, the curlews.

The American species of *Macrorhamphus* are called dowitchers. Ridgway includes a diagnosis of the Oriental species of *Macrorhamphus* and uses as an English name semipalmated snipe. If there is no objection to "dowitcher" as a name, I suggest "Oriental dowitcher" for *Macrorhamphus semipalmatus* as being more appropriate than Ridgway's name, semipalmated snipe.

Of the name dowitcher Webster's Dictionary says:

Of Amer. Ind. origin; cf. Mohawk and Cayuga *ta-wis*, Onondaga, *ta-wish*, the name for the snipe.

The Standard Dictionary and the Century Dictionary give a very different derivation of the name. The latter says that dowitcher is a corruption of *deutscher*, a German, and is—

a popular and now a book name of this species [*Macrorhamphus griseus*], which was formerly locally (Long Island and vicinity) called German or Dutch snipe, to distinguish it from the so-called English snipe, *Gallinago wilsoni*.

Trumbull<sup>3</sup> says of the same species:

These names Dowitch and Dowitcher meant originally that this was the Dutch or German, Snipe (*Dutch*, *Deutscher*), and were probably employed to distinguish No. 45 [*M. griseus*] particularly from the "English" snipe, No. 44.

<sup>1</sup> Check-list of North American Birds, 3d ed. revised. New York (1910), 109-125.

<sup>2</sup> Ridgway, R., A Manual of North American Birds. J. B. Lippincott Company, Philadelphia (1887), 147-149.

<sup>3</sup> Trumbull, Gurdon, Names and Portraits of Birds. Harper and Brothers, New York (1888), 160-162.

I do not find that dowitcher is given by Newton<sup>4</sup> or by Murray.<sup>5</sup> Snipe-billed sandpiper<sup>6</sup> and snipe-billed godwit seem to me undesirable. Red-breasted snipe, gray snipe, brown snipe, New York godwit, long-billed snipe, red-bellied snipe, and some other less-used names are inappropriate and not distinctive.<sup>7</sup>

*Totanus stagnatilis* Bechstein. Fig. 3.

*Totanus stagnatilis* MCGREGOR, Phil. Journ. Sci., Sec. D (1916), 11, 274 (Luzon).

Since reporting the occurrence of *Totanus stagnatilis* in Luzon, I have found three more specimens in the Bureau of Science collection, which were killed at Obando, Bulacan Province, Lu-

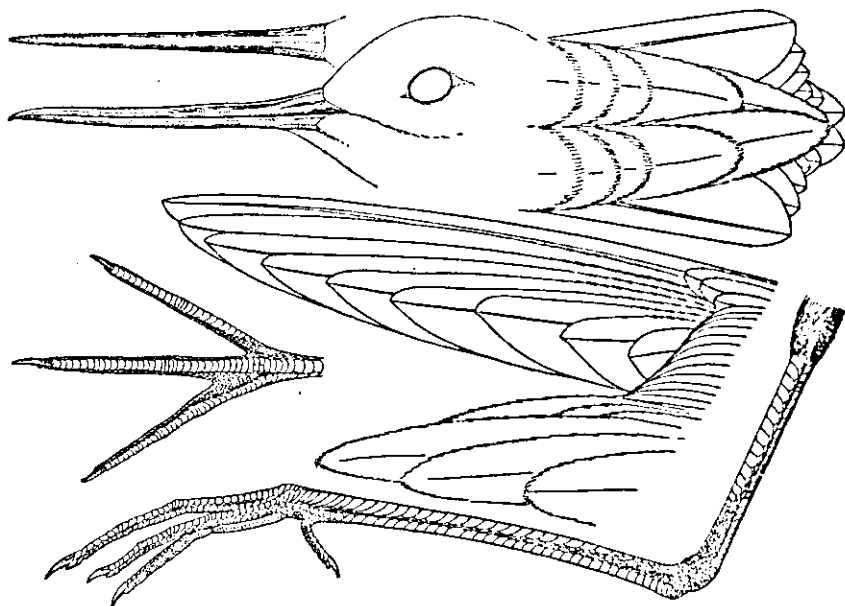


FIG. 3. *Totanus stagnatilis* Bechstein, generic details, from a male. Actual size.

zon, on November 15, 1910. In 1916 Celestino collected a male on November 29 and a female on December 27 in the same locality.

*Gallinago stenura* (Bonaparte). Fig. 4, b.

During the time that Dr. H. C. Curl was stationed at Caña-

<sup>4</sup>Newton, Alfred, A Dictionary of Birds. Adam and Charles Black, London (1893).

<sup>5</sup>Murray, Sir James, A New English Dictionary. Oxford (1897), 3.

<sup>6</sup>Seeborn, H., The Birds of the Japanese Empire. R. H. Porter, London (1890), 330. Blanford, W. T., The Fauna of British India, including Ceylon and Burma. Birds. Taylor and Francis, London (1898), 4, 257.

<sup>7</sup>Trumbull, op. cit.

cao, he and Mrs. Curl spent many days in hunting snipe in the vicinity of Cavite, and Doctor Curl was much interested in the differences by which the three species found in the Philippine Islands could be distinguished. He suggested to me that there might be some average differences in their weights, and I believe that he kept a record of the weights of many specimens; but I do not think he ever published anything on the subject. A male specimen of *Gallinago stenura* collected at Cavite on September 29, 1910, by Doctor Curl has a weight of 110 grams marked on the tag. Doctor Curl kindly prepared spread tails of the three Philippine species for my use. I had intended to photograph these, but the drawings of them (figs. 4 and 5) show the differences more clearly than a photograph would.

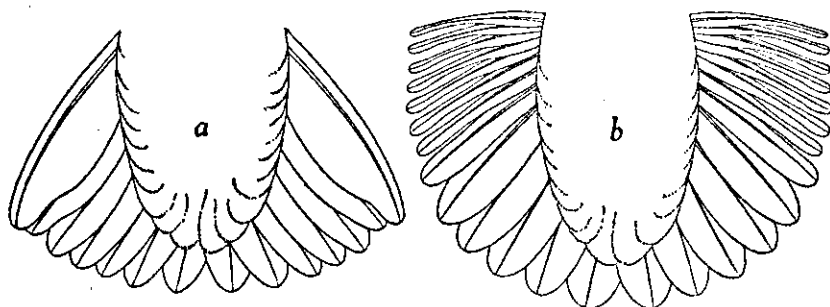


FIG. 4. a, *Gallinago gallinago* (Linnaeus), and b, *G. stenura* (Bonaparte), showing the difference in the rectrices. Two-thirds actual size.

*Gallinago megala* Swinhoe. Plate III, fig. 3; text fig. 5.

Messrs. Squires-Bingham Co., of Manila, sent to the Bureau of Science a partially albino male Swinhoe's snipe to be mounted. This specimen was received on September 27, 1917. The white feathers can be indicated in tabular form as follows:

TABLE II.—White feathers in wings of a specimen of *Gallinago megala*.

|                      | Wing.                 |                                     |
|----------------------|-----------------------|-------------------------------------|
|                      | Left.                 | Right.                              |
| Primaries.....       | First to seventh..... | Fourth to tenth.                    |
| Secondaries.....     | First to fifth.....   | First and second.                   |
| Primary coverts..... |                       | First to fourth;<br>sixth to tenth. |
| Greater coverts..... | First to sixth.....   | Third to fourth.                    |
| Median coverts.....  | A few.....            | A few.                              |
| Lesser coverts.....  | None.....             | Do.                                 |
| Alula.....           | Second.....           | Second and third.                   |

The toes of this specimen were somewhat unusual in color as follows: Soles of toes buff-yellow; tarsi and proximal joints of

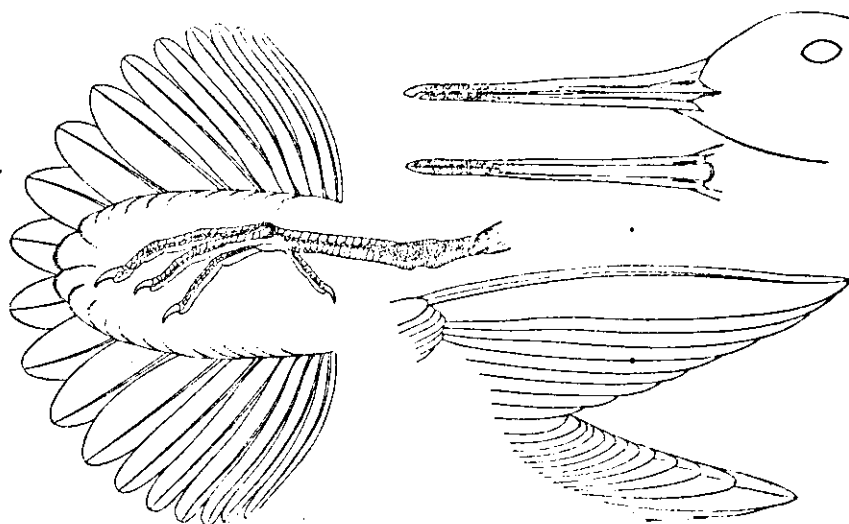


FIG. 5. *Gallinago megala* Swinhoe. Two-thirds actual size.

some toes chamois yellow; nail of hind toe on left foot black; all the other nails and some of the distal joints of all toes mustard yellow.

*Lobipes lobatus* (Linnæus). Fig. 6.

*Lobipes lobatus* MCGREGOR, Man. Phil. Bds. (1909), 149 (record of specimen collected by Mearns in Basilan Straits), 728 (Luzon).

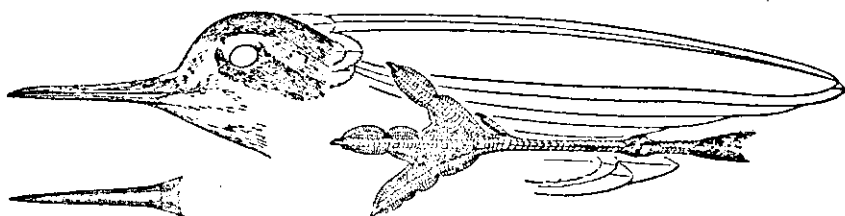


FIG. 6. *Lobipes lobatus* (Linnæus). Actual size.

A female northern phalarope in summer plumage was collected in Basilan Straits by the late E. A. Mearns on April 19, 1906 (U. S. N. M. No. 200775, B. S. No. 12901). Dr. and Mrs. H. C. Curl collected a specimen (B. S. No. 12934) of this species near Cavite, Luzon, on October 20, 1909. This specimen is in winter plumage.

*Plegadis autumnalis* (Linnæus). Fig. 7.

*Plegadis falcinellus* SHARPE, Cat. Bds. Brit. Mus. (1898), 26, 29; BLANFORD, Fauna Brit. India, Bds. (1893), 4, 364; MEARNS, Proc. Biol. Soc. Washington (1905), 18, 89 (Mindanao).  
*Plegadis autumnalis* MCGREGOR, Man. Phil. Bds. (1909), 157.

It is strange that so large a bird as the glossy ibis was not recorded from the Philippine Islands until 1905. Mearns says that "great numbers of glossy ibises frequent the lakes and rivers of Mindanao," and he mentions having had two specimens, one of which he sent to the United States National Museum. Mr. W. Cameron Forbes, then Governor-General of the Philippine Islands, told me that in March, 1910, he saw many ibises on Bulusan Lake, in the interior of Cotabato Province, Mindanao. As he expressed it, "there were easily hundreds" of ibises. Mr. Forbes collected two specimens in Mindanao in

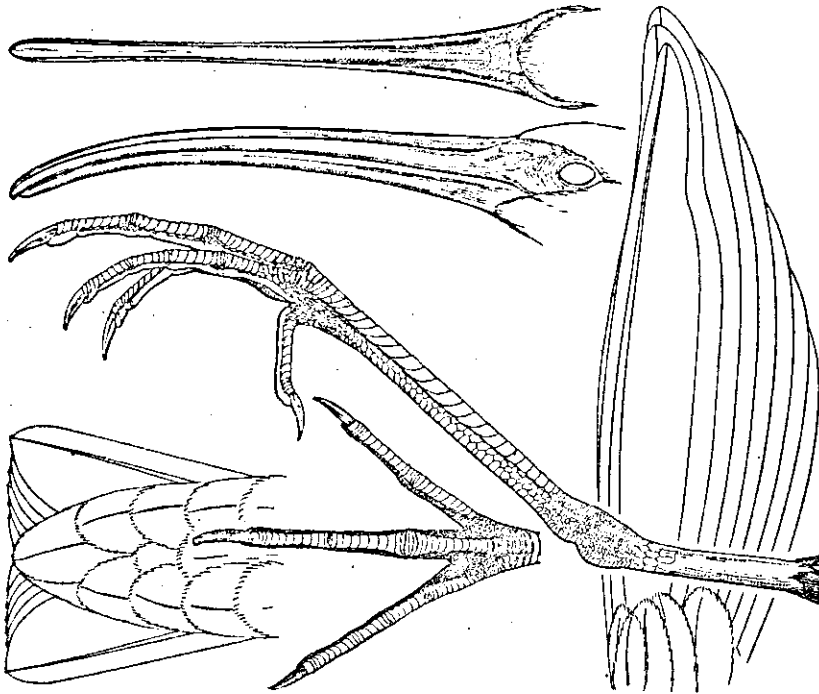


FIG. 7. *Plegadis autumnalis* (Linnæus). One-half actual size.

1913, one of which (No. 13279) he presented to the Bureau of Science; the other was sent to Harvard College. Mr. A. O. Zinn collected a glossy ibis on Laguna de Bay, Luzon, which he presented to the Bureau of Science (No. 13278). This specimen was killed on November 15, 1911; it is a male in winter plumage. Dr. H. C. Curl, formerly stationed at the Cañacao Naval Hospital, Cavite Province, contributed a fine skin of the glossy ibis (No. 12930) to the Bureau of Science collection. This is a female in summer plumage and was killed by Doctor Curl near Cavite on September 14, 1909.

In this species the female is somewhat smaller than the male, and the bill and the legs are very noticeably shorter, as shown in the table of measurements.

TABLE III.—Measurements of *Plegadis autumnalis*.

| Bureau of Science No. | Locality.                  | Date.           | Sex. | Wing. | Tail. | Bill from frontal feathers. | Tarsus. | Middle toe with claw. |
|-----------------------|----------------------------|-----------------|------|-------|-------|-----------------------------|---------|-----------------------|
|                       |                            |                 |      | mm.   | mm.   | mm.                         | mm.     | mm.                   |
| 12930                 | Cavite, Luzon .....        | Sept. 14, 1909. | ♀    | 260   | 92    | 109                         | 85      | 70                    |
| 13278                 | Laguna de Bay, Luzon ..... | Nov. 15, 1911.  | ♂    | 260   | 98    | 134                         | 101     | 82                    |
| 13279                 | Cotabato, Mindanao .....   | Mar. 24, 1913.  | ♂    | 278   | 96    | 138                         | 103     | 82                    |

### *Fregata ariel* (Gould).

*Fregata ariel* WHITEHEAD, Ibis (1899), 500 (Cape Engaño, Luzon); MCGREGOR, Man. Phil. Bds. (1909), 207.

A female man-of-war bird was secured at Malabon, near Manila, on August 21, 1917. This specimen was taken shortly after a storm and was mounted for the owner. The stomach contained about twenty small round worms, which Prof. L. D. Wharton tells me belong to the family Heterakidae. The following color notes were taken from the specimen the day after it was killed: Skin around eye dark carmine; bill parula blue, nail pale blue, skin between rami light bluish violet mottled with dark carmine; legs pale dull blue slightly mottled with pomegranate purple, nails light drab.

Whitehead's statement concerning this species, "Not uncommon in the Philippines," does not express the results of my experience. I have seldom seen either this or the larger species.

*Anhinga melanogaster* Pennant. Plate II.

In June, 1917, Dr. Alvin J. Cox, director of the Bureau of Science, brought from Mindoro Island a living specimen of the Indian darter. This bird had been slightly wounded by a single small shot, which had entered near the base of the bill. The bird was placed in a cage and in a few days had completely recovered.

There has never been any trouble in feeding this bird, except to get enough fish to satisfy it. The bird has always eaten readily and has never shown any fear of man. At first the fishes were placed in a pan of water in the cage, and the bird picked them up one by one, tossed them into the air, and caught them head first. When its hunger became partially appeased,

it played with the fishes without picking them up or tossed them into the air and failed to catch them and then worried them around in the water pan. Later the fishes were thrown to the bird, one by one, and it now catches them on the fly almost without a miss. After catching a fish, the bird always throws it into the air to get it headed in the right direction. One day this bird caught and swallowed twenty-two small fishes almost as fast as they could be tossed to it. At this time we gave no more, as our supply was exhausted. The fishes fed each day are small sardines and similar kinds 60 to 75 millimeters long and about 20 millimeters deep.

The darters are well known for their habit of standing with the wings extended as if hung out to dry. Our specimen expands its wings at frequent intervals during the day, and at such times it displays accurate muscular control of the feathers. The long scapular feathers are raised so that they stand at various angles to the back; the alula extends free from the wing; the upper and the under wing coverts and the feathers along the edge of the wing are raised almost at right angles to the respective surfaces from which they originate. Some of these raised feathers can be distinctly seen in the photographs (Plate II). These feathers are often raised when the wings are folded. The characteristic transverse ribs of the larger scapular feathers can be seen in one of the photographs. Our specimen often flaps its wings vigorously before spreading them. In this way the tips of the primaries have become worn off against the wire netting of the cage. The only vocal effort I have heard this bird make is a weak, monosyllabic, guttural *kuak*, uttered two or three times with about one-second intervals. The note is used to express a state of contentment or of excitement.

Several times I have carefully approached the cage after dark and have always found the bird with its head buried in the feathers far down its back. I have found it in this position in the daytime. It awakes very readily, even so slight a sound as that made by opening a wooden match box may disturb it. At times it rests on one foot, the toes of the other being curled up. It is very adept at scratching itself. It may begin near the base of the bill and vigorously comb the feathers of the neck, working gradually toward the body for several centimeters. The long neck greatly facilitates the preening process, and the bird spends much time in this part of its toilet. The



longer feathers are passed between the mandibles, and the short feathers of the body and lower neck are vigorously manipulated with the tip of the bill. This individual is almost constantly engaged in some activity, and the number of peculiar positions into which it can twist its neck is surprising. We secured photographs of some of these, but they do not include the most awkward positions nor show the remarkable loop formed by the neck when the bird preens the feathers of its throat.

The following color notes were made from this living bird and from a specimen killed when this one was captured: Iris honey yellow, the outer border and a narrow inner ring primuline yellow; skin below eye dark olive-ocher, above eye and at base of bill light yellowish olive; bill yellowish olive, but proximal half of lower mandible light orange-yellow; tarsi deep to dark olive-gray in front, iron-gray or darker behind; toes dark olive-gray, webs yellowish olive.

*Pithecophaga jefferyi* Grant. Plate III, figs. 1 and 2; text fig. 8.

*Pithecophaga jefferyi* GRANT, Bull. Brit. Orn. Club (1896), 6, 17; Ibis (1897), 214, Pl. V, text figs. 1-4 (Samar); MCGREGOR, Man. Phil. Bds. (1909), 226; SETH-SMITH, Ibis (1910), 286 and 758, Pl. IV, text fig. 4 (Mindanao).

Although the monkey-eating eagle has been definitely recorded from Luzon, its size and rarity warrant the recording of additional notes of its occurrence. Through the interest and the efforts of Gov. E. A. Eckman and Gov. Leo J. Grove a living bird of this species was sent to the Bureau of Science in January, 1917. The specimen was captured at an altitude of about 1,200 meters on Mount Ballong, which is 6 kilometers west and a little south of Imugan, Nueva Vizcaya Province, Luzon. This is the most northern record of this eagle. Although I saw a large eagle, probably of this species, at Irisan, Benguet Province, the record must be always considered doubtful.

Governor Grove kindly furnished the following notes about the specimen secured by him:

The eagle was caught with a bait and a snare. The bait was a small pig and after it was placed several rattan nooses was placed around it so that when the eagle made his swoop for the pig he would have to enter one of them which drew tighter the more it struggled. The nooses were made quite large but not large enough for the wings to pass through. The noose being struck by the wings with the velocity of the body of the eagle was caused to tighten and hold the bird securely. The same men have promised to get me the mate of this one, but as they were six months getting the one we have I have not very many hopes of their success.

The photographs of the head (Plate III, figs. 1 and 2) clearly

show the characteristic form of the bill, the narrow vertical nostril, the hairs on the cere, the deeply sunk eye, and the lanceolate feathers of the crest. The iris was pale blue, a very unusual color for the eye of a raptorial bird; bill dark green-blue gray, distal half black; tarsus and feet pale dirty yellow; nails

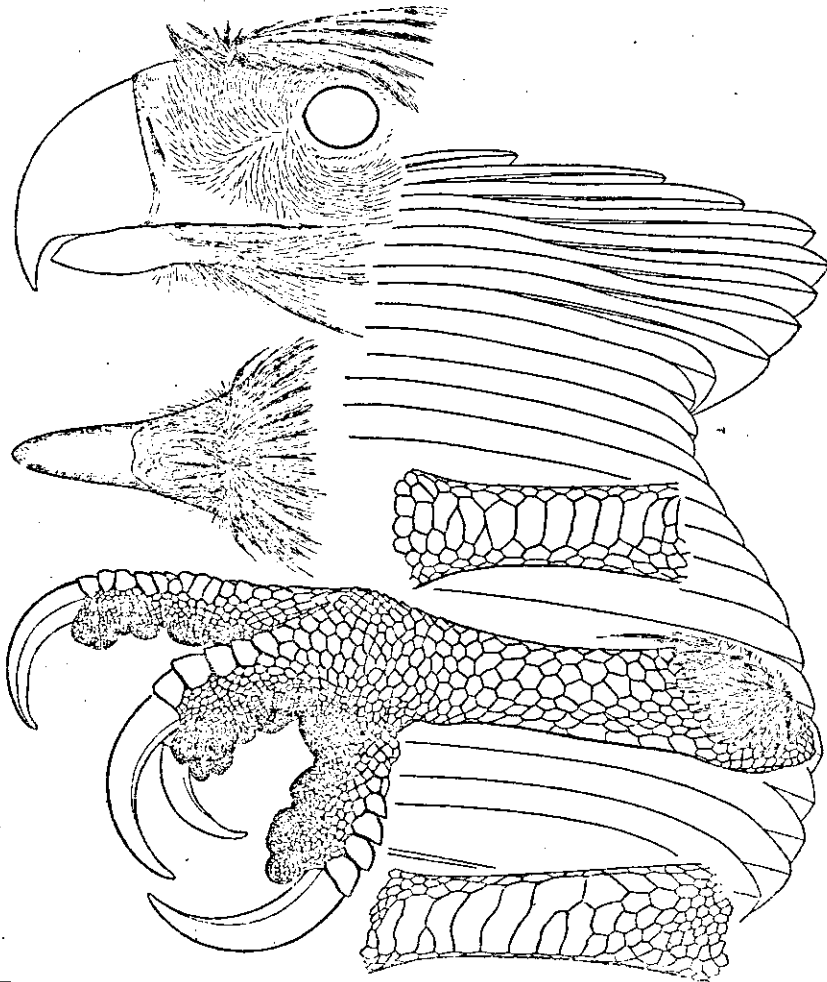


FIG. 8. *Pithecopaga jefferyi* Grant, generic details. The lower mandible is retracted or worn. The outline of the wing is one-fourth actual size, the other parts are one-half actual size.

black. After the photographs had been taken at the Bureau of Science, the living bird was deposited in the Manila botanic garden, where it is still living (January 1, 1918).

The text figures presented herewith were made from the specimen collected by Harry M. Ickis in Laguna. I am unable to figure the tail, as that member was missing from the material

given to me by Mr. Ickis and the tail of the mounted specimen in the Bureau of Science collection is very imperfect. This species has a very full crest, which the bird often expands, as is well shown in the front view of the head published by Seth-Smith (his fig. 4).

*Chaetura dubia* McGregor. Fig. 9.

*Chaetura dubia* MCGREGOR, Bur. Govt. Laboratories (1905), No. 34, 15, Pl. XII (Mindoro).

On April 2, 1911, Dr. and Mrs. H. C. Curl collected near Cavite, Luzon, a large spine-tailed swift (No. 13270). This specimen is in somewhat worn plumage, but in colors and markings it cannot be distinguished from the type of *Chaetura dubia*. This appears to be the first positive record of any species of this genus from Luzon.

In 1902 I observed large swifts near Mariveles, Bataan Province; and in January, 1913, at Dupax, Nueva Vizcaya Province, large swifts flew over the town low enough to tempt us to shoot at them. It was impossible for me to determine to what species these belonged, but that they were one of the large species of *Chaetura* there can be no doubt. The immense size of these birds and the grace and high speed of their flight are extremely characteristic.

The following letter refers to some species of *Chaetura*:<sup>1</sup>

BAGUIO, March 16th, 1910.

MY DEAR MR. MCGREGOR: The first Sunday after my arrival I rode my big horse to the top of Santo Tomas, over a pretty good trail. I saw a number of birds about there but the thing that particularly interested me was two pairs (apparently) of *Chaetura*, which were chasing each other about the very summit of the mountain and repeatedly passed within ten feet of my head. I have heretofore believed that the Luzon representative of this species did not have the white spots in front of the eyes, but am now forced to change my opinion. I am quite positive that I saw these white spots but as you know, this bird flies with tremendous velocity and I could not be absolutely certain that this was the case. I am now of the opinion that it will prove identical with the Mindoro species or closely allied to it.

Sincerely yours,

DEAN C. WORCESTER,  
Secretary of the Interior.

Ridgway<sup>2</sup> has made *Chaetura picina* Tweeddale the type of a genus, *Mearnsia*. If this genus be recognized, *Hirundapus*

<sup>1</sup> See also previous note by Mr. Worcester, *This Journal* (1906), 1, 766.

<sup>2</sup> *Bull. U. S. Nat. Mus.* (1911), 50, Pt. V, 686.

Hodgson must be revived for the large spine-tailed swifts, which Ridgway has done.\*

In Ridgway's key to the genera, *Hirundapus* is said to have the "tenth (outermost) primary longest, or at least not distinctly shorter than the ninth." I find that this is true of more than thirty specimens of *Chætura gigantea* (Temminck). In the type and the cotype of *Chætura dubia*, both in perfect plumage,

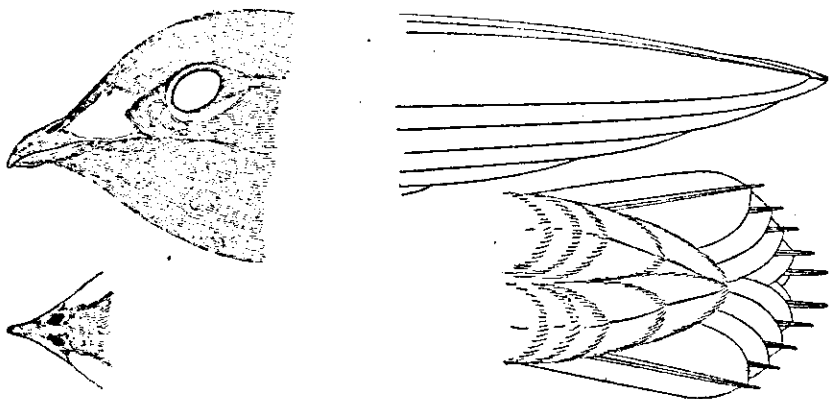


FIG. 9. *Chætura dubia* McGregor. Actual size.

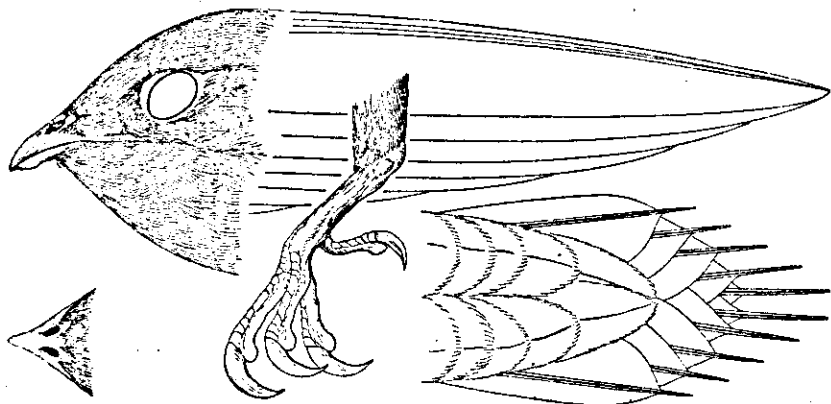


FIG. 10. *Chætura gigantea* (Temminck), generic details. Actual size.

the outermost primary is shorter than the next one (compare figs. 9 and 10). In the third specimen, from Cavite, of the latter species the tips of the primaries are badly abraded, so that it is impossible to say which was the longest. The difference in the length of the tail spines in these two species is shown in the text figures. The shorter spines do not seem to have been abraded.

\* Loc. cit.

I have not seen a specimen of *Chactura picina*, the type of which was collected by Everett in Mindanao. Whitehead secured three specimens in Leyte, and I think the late E. A. Mearns told me that he had collected one or more specimens in Mindanao.

***Micropus subfurcatus* (Blyth).**

*Cypselus subfurcatus* MCGREGOR, Phil Journ. Sci., Sec. A (1907), 2, 346, Pls. IV and V, fig. 2 (Camiguin Island, north of Luzon).

*Micropus subfurcatus* MCGREGOR, Man. Phil. Bds. (1909), 362.

Mr. W. Cameron Forbes collected a specimen of this swift at Sagada, Bontoc, Mountain Province, Luzon, on May 23, 1913. The sex was not determined. The specimen is in the collection at Harvard College. The only other Philippine specimen of *Micropus subfurcatus* is the one in the Bureau of Science, collected by me on Camiguin Island, north of Luzon.

***Zosterornis plateni* (Blasius).**

*Mixornis plateni* BLASIUS, Journ. f. Orn. (1890), 147.

*Zosterornis plateni* GRANT, Ibis (1897), 233 (in key to species); MCGREGOR, Man. Phil. Bds. (1909), 530.

Only the type specimen of this *Zosterornis* seems to be known. In a small collection of birds obtained by Mr. W. Cameron Forbes at Malabang, Mindanao, on July 31, 1913, I noted a male *Zosterornis* that was undoubtedly *Mixornis plateni*. The following description was written at the time that I examined the specimen:

*Male*.—Back olive-brown, with faint whitish shaft stripes, slightly rusty on occiput, tail coverts, and edging of rectrices; feathers of forehead, sides of head, chin, and throat black with conspicuous, white shaft stripes; sides of neck and breast rusty and with white shaft stripes; middle of chest and of abdomen and tail coverts white; sides olivaceous; edging of wing feathers dull olivaceous; axillars and lining of wing white; inner edges of primaries and secondaries ochraceous-white. This species is one-third less in size than *Zosterornis capitalis*, *nigrocapitalis*, or *affinis*; and the colors, especially of the head, the chin, and the throat, are remarkably different. The white shaft stripes of these parts are particularly noticeable. Wing, 51.5 millimeters; tail, 44; exposed culmen, 10; tarsus, 15; middle toe with claw, 13. The specimen is now in the collection at Harvard College.

The above measurements agree closely with those of the type: "♀ Long. tot. 12 cm. Ala 5.5 cm. Caud. 4.7 cm. Culmen 1.0 cm. Tarsus 1.5 cm."

## ILLUSTRATIONS

### PLATE I

*Leucotreron merrilli* McGregor, from the type and from a living bird.  
Drawn and colored by T. Espinoza.  $\times 0.5$ .

### PLATE II

*Anhinga melanogaster* Pennant, from a living bird.

### PLATE III

FIGS. 1 and 2. *Pithecophaga jefferyi* Grant, from a living bird.

FIG. 3. *Gallinago megala* Swinhoe, a partial albino. Photograph of a specimen mounted by the Bureau of Science.

### TEXT FIGURES

[Drawings by M. Ligaya.]

- FIG. 1. *Mesoscolopax minutus* (Gould), generic details, from a female.  $\times 1$ .
2. *Macrorhamphus semipalmatus* (Jerdon), generic details, from a female.  $\times 1$ .
3. *Totanus stagnatilis* Bechstein, generic details, from a male.  $\times 1$ .
4. A, *Gallinago gallinago* (Linnaeus); b, *G. stenura* (Bonaparte). Tails, showing the difference in the rectrices.  $\times \frac{1}{3}$ .
5. *Gallinago megala* Swinhoe, generic details.  $\times \frac{1}{3}$ .
6. *Lobipes lobatus* (Linnaeus), generic details.  $\times 1$ .
7. *Plegadis autumnalis* (Linnaeus), generic details, from a male.  $\times 0.5$ .
8. *Pithecophaga jefferyi* Grant, generic details, from the Ickis specimen [see *This Journal*, Sec. A (1907), 2, 297]. The lower mandible is worn or retracted. Wing,  $\times 0.25$ ; bill and foot,  $\times 0.5$ .
9. *Chætura dubia* McGregor, generic details, from the type.  $\times 1$ .
10. *Chætura gigantea* (Temminck), generic details, from a male.  $\times 1$ .



PLATE I. LEUCOTRERON MERRILLI MCGREGOR. ONE-HALF ACTUAL SIZE.

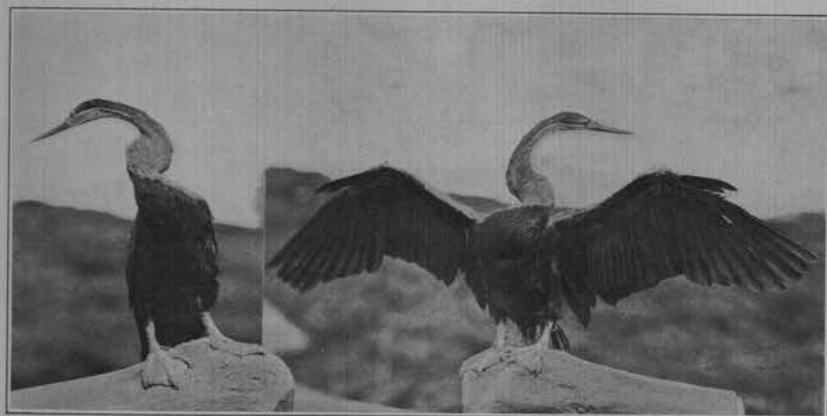
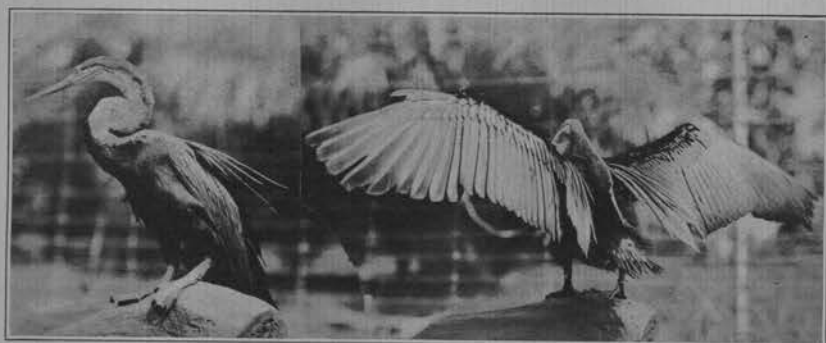


PLATE II. ANHINGA MELANOGASTER PENNANT.





Fig. 1. *Pithecophaga jefferyi* Grant.



Fig. 2. *Pithecophaga jefferyi* Grant.

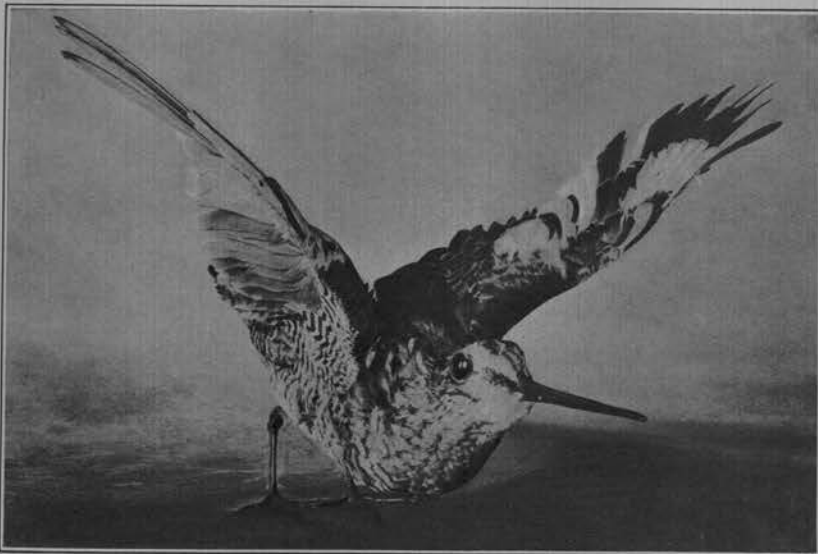


Fig. 3. *Gallinago megala* Swinhoe.

PLATE III.

## NOTES ON THE PHILIPPINE MEMBRACIDÆ

BY W. D. FUNKHOUSER

(From the Entomological Laboratory of Cornell University, Ithaca)

### ONE PLATE

In a paper published in 1915<sup>1</sup> an attempt was made to review all of the species of Membracidæ known from the Philippine Islands at that time, and tables were given that should aid in their recognition.

Since that date the papers published by Distant<sup>2</sup> and the supplementary volume of the Homoptera of British India<sup>3</sup> by the same author have added some valuable data to the literature of the East Indian forms, while the continued collecting of Prof. C. F. Baker, of Los Baños, has brought to light a number of interesting new species. Also Mr. Distant has very kindly compared for me some of the questionable forms with the type specimens of Walker in the British Museum, and Professor Baker has called attention to the fact that two records in literature were overlooked in the former paper. For these reasons the following notes are given to bring the knowledge of the family up to date in regard to the Philippine fauna.

Unfortunately there are yet no data on the biology of the species, so that these additions are entirely from a systematic viewpoint.

I am again greatly indebted to Professor Baker, who has so kindly furnished me with all of the new material.

### Genus *XANTHOSTICTA* Buckton

Buckton<sup>4</sup> has described three species of the genus *Bolbonota* from the Islands. It seems improbable that this genus should be thus represented, as the insects representing the genus are native of an entirely distinct faunal area, and no other species of the subfamily Membracinæ, to which *Bolbonota* belongs, have

<sup>1</sup> Funkhouser, W. D., Review of the Philippine Membracidæ, *This Journal*, Sec. D (1915), 10, 365-405.

<sup>2</sup> Distant, W. L., Rhynchotal notes, *Ann. & Mag. Nat. Hist.* (1915), VIII, 16, 322-328, 489-496; (1916), 17, 149-159, 313-330; 18, 19-44.

<sup>3</sup> Distant, W. L., Fauna of Brit. Ind., Rhynch. VI, Hom. Append., viii and 248 pp. London, March, 1916.

<sup>4</sup> Buckton, G. B., Monograph of the Membracidae (1903), 64.

ever been recorded from the Philippines. It seems likely that Buckton has made a wrong generic diagnosis, but the type specimens are not available for examination. In discussing the matter, Mr. Distant states (in correspondence) :

I have not seen either *Bolbonata grisea* Buckt. or the two following species which he describes from the Philippines. They are clearly not congeneric with *Bolbonota*.

Buckton, however, apparently recognized the fact that these forms did not fit exactly into the genus to which he assigned them, for in a footnote<sup>5</sup> he mentions "the different appearance and the non-spatulate tibiae" of these species and suggests "a new genus called provisionally *Xanthosticta*" to include them. For purposes of cataloguing it seems necessary to erect this genus for the accommodation of the species under discussion, since it is clear that they cannot be correctly assigned to *Bolbonota*.

***Xanthosticta grisea* Buckton.**

*Bolbonata grisea* BUCKTON, Mon. Memb. (1903), 63, Pl. 9, fig. 7.

The species has never been recognized since the original description, which follows:

Smaller than *B. luzonica*, the next species to be described; colour ashy-grey; pronotum without dorsal carinations; tegmina one-third pale from the tips, the other two-thirds dark brown; abdomen with the segments edged with white.

The legs both of this and *B. luzonica* show but little of the spatulate character seen in the ordinary species of *Bolbonota*.

Size in expanse of the wings, 6 x 3 mm.

Habitat.—Philippines. H. Cuming. (Hope Coll.)

***Xanthosticta luzonica* Buckton (Westwood in Hope coll.).**

*Bolbonata luzonica* BUCKTON, Mon. Memb. (1903), 64, Pl. 9, fig. 8; *ibid.*, 75.

Like the preceding, this species is known only by the original description of Buckton, which follows:

Head wide with prominent eyes; pronotum with a sharp pointed apex; the dorsal part with three rough carinae separated by deep furrows or sulci; tegmina roundish, orange-brown with whitish tips followed by brownish stains near the apices; one-third near the base dark brown; wings delicate and hyaline, with four radials and no limbus.

Expanse, 7 x 3 mm.

Taken by H. Cuming, Esq. in the Philippine Islands.

It is named by Westwood in the Hope Coll.

***Xanthosticta trivialis* Buckton.**

*Bolbonota trivialis* BUCKTON, Mon. Memb. (1903), 64, Pl. 10, fig. 1.

<sup>5</sup> *Ibid.*, footnote, p. 63.

Buckton's description follows:

Pronotum without carinations; metopidium and part of the dorsum ochreous; tegmina dark brown with coarse but obscure neuration; the wings ample and hyaline. In the figure these wings are seen spread outside the tegmina; legs scarcely if at all spatulate.

This somewhat obscure insect is figured as being an example taken in the Philippine Islands of a genus usually thought to be exclusively American. Size, 3 x 2 mm.

Taken by H. Cuming. (Hope Coll.)

Habitat.—Luzon.

#### Genus CENTROCHARES Stål

##### *Centrochares posticus* Buckton.

*Pterygia postica* BUCKTON, Mon. Memb. (1903), 70, Pl. 11, figs. 4–5a.

*Centrochares horrificus* (in part) FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 370.

*Centrochares posticus* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 314.

Distant recognizes the male of *C. posticus* as distinct from *C. horrificus*, of which I considered it a synonym, and regards the female as still another species.

##### *Centrochares bucktoni* Distant.

*Pterygia postica* ♀ ? BUCKTON, Mon. Memb. (1902), 70, Pl. 11, fig. 4a.

*Pterygia postica* (as syn.) FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 370.

*Centrochares bucktoni* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 314.

The recognition of the female of *Pterygia postica* as a distinct species and its dedication to Buckton are given without comment by Distant in his rhynchotal notes. I am still unconvinced that a long series of *C. horrificus* will not show forms that will include both *C. postica* and *C. bucktoni*. The species shows a great deal of variation.

##### *Centrochares horrificus* Westwood.

*Centrochares horrificus* DISTANT, Ann. & Mag. Nat. Hist. (1915), VIII, 16, 327.

Add: *Habitat*.—MINDORO, Baco River (*J. J. Mounsey*).

#### Genus PYRGONOTA Stål

##### *Pyrgonota longiturrus* sp. nov. Plate I, figs. 1 and 2.

Nearly uniform ferruginous brown, front of pronotal horn and face slightly darker than the rest of the body; entire body and tegmina densely punctate; tegmina opaque; posterior process decurved, reaching beyond internal angle of tegmina, but not to its tip; thorax armed with teeth on lateral margins; tibiae

of all three pairs of legs much flattened; pronotal horn longer than distance from front of head to tips of tegmina.

Head longer than broad, somewhat foliaceous, brown, lightly punctate and pubescent with golden hairs; eyes prominent, dark brown; ocelli yellowish, farther from each other than from the eyes and situated slightly above an imaginary line drawn through centers of eyes; clypeus large, distinctly three-lobed, tip hirsute.

Pronotum brown, darker in front, uniformly punctate, slightly pubescent; pronotal horn very long, porrect, straight and laterally compressed except the tip, which is sharply bent backward and expanded into a flat, spreading plate; median carina percurrent; humeral angles not prominent, obtuse, extending laterally beyond the eyes for a distance as great as the width of the eyes; posterior process long, slender, acuminate, sinuate, decurved at tip, extending beyond internal angle of tegmina.

Tegmina coriaceous, opaque, brown, punctate, veins indistinct, external and internal angles sharp, tip pointed.

Legs and undersurface of body brown; lateral margins of thorax armed with teeth; tibiae of all legs flattened, spined; legs and prothorax slightly powdered with white coating; claws brown.

Length from front of head to tip of tegmina, 7 millimeters; height of pronotal horn from humeral angles to tip, 8; width between humeral angles, 2.

LUZON, Laguna, Mount Maquilang (*Baker*).

Type, a female specimen in Professor Baker's collection.

#### Genus LEPTOCENTRUS Stål

*Leptocentrus reponens* Walker.

Add: *Habitat*.—MINDANAO, Davao (*Baker*), Baker's duplicate No. 6470.

#### Genus CENTROTYPUS Stål

The genus *Centrotypus* is characterized as follows: Posterior process present; tibiae simple; underwings with four apical areas; thorax elevated; two suprahumeral horns; tegmina with five apical areas; scutellum plainly visible at sides; no cross vein at base of tegmina.

*Centrotypus aduncus* Buckton.

*Leptocentrus aduncus* BUCKTON, Mon. Memb. (1903), 236, Pl. 53, fig. 6; FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 380.  
*Centrotypus aduncus* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 318.

The assignment of this species to *Centrotypus* adds a new genus to the check list of the Philippine forms. Distant presumably had access to Buckton's type material, so that this species, which was tentatively placed under *Leptocentrus* in the earlier review, may be now assigned a definite position.

#### Genus IBICEPS Buckton

The genus *Ibiceps* was erected by Buckton<sup>a</sup> to include those species in which the long suprahumeral horns are sharply bent backward at their tips. In other respects the genus is close to *Leptocentrus*, having the posterior process not elevated above the body, the tegmina pointed at the tips, and five apical areas and two discoidals. Buckton states that the neurulation is not constant, but that the discoidal areas may be subdivided.

This genus has been added to the Philippine fauna by the description of a new species and the reduction of an old one to synonymy.

#### *Ibiceps erigens* Walker.

*Centrotus erigens* WALKER, List. Hom. Brit. Mus. (1851), 614, 43.

*Sertorius erigens* STÅL, Hem. Phil. (1870), 727.1; FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 383.

*Ibiceps erigens* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 150.

With the reduction of this species to synonymy, the genus *Sertorius* is eliminated from the Philippine list where, indeed, it is doubtful if it should have been ever placed. It was noted in the former discussion<sup>7</sup> that the genus was of very doubtful standing and was included only tentatively.

#### *Ibiceps mounseyi* Distant.

*Ibiceps mounseyi* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 150.

Known only from Distant's recent description which follows:

Head and pronotum black; a frontal lateral pronotal fascia on each side, two distinct discal pronotal fasciae, a central fascia to face, the clypeus, and lateral sternal areas greyish pubescent; tegmina stramineous, apical area dark castaneous, base, costal and subcostal areas and apical margin black; legs testaceous; abdomen beneath black, excluding apical area, greyish pubescent; pronotum coarsely punctate, the anterior produced processes almost horizontal, very slightly recurved, their apices acute, disk centrally carinate, posterior process tricarinate and passing the posterior angle of the inner tegminal margin, frontal area strongly carinate.

<sup>a</sup>Buckton, G. B., Monograph of the Membracidae (1903), 239.

<sup>7</sup>Funkhouser, W. D., *This Journal*, Sec. D (1915), 10, 382.

Long., incl. tegm., 12 mm.; exp. ant. pronot. process, 5 mm.

Hab. Philippine Islands (J. J. Mounsey).

Allied to *I. erigens* Walk., but differing by the much more slender and less curved pronotal processes, etc.

### Genus TRICENTRUS Stål

#### *Tricentrus orcus* Buckton.

*Centrotus orcus* BUCKTON, Mon. Memb. (1903), 247, Pl. 60, figs. 7, 7a, 7b; FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 390.

*Tricentrus orcus* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 390.

The transfer of this species from the genus *Centrotus* to the genus *Tricentrus* was to have been expected. It is very doubtful if the old genus *Centrotus* as now limited is represented in the Island fauna.

The species has not been recognized in any of the material studied in connection with this report. The measurements given by Buckton (5 x 3 mm.) are small for the majority of the species of this genus unless referring only to males. It may be that Buckton had only male specimens before him and that this species may prove to be the opposite sex of some other species described from females.

#### *Tricentrus pilinervosus* Funkhouser.

Add: *Habitat*.—LUZON, Benguet, Baguio (*Baker*). MINDANAO, Davao (*Baker*), Baker's duplicate Nos. 6307 and 6471.

#### *Tricentrus attenuatus* Funkhouser.

Add: *Habitat*.—MINDANAO, Davao (*Baker*), Baker's duplicate No. 6473.

#### *Tricentrus robustus* sp. nov. Plate I, figs. 3 and 4.

Near *Tricentrus fairmairei* Stål, but larger and darker and differing principally in the shape and position of the suprahumeral horns, which are larger, more flattened, higher, and directed more dorsad.

Heavy, robust, very dark brown, thickly punctate, densely pubescent with golden hairs. Suprahumeral horns heavy, laterally compressed, extending upward and outward. Posterior process short, heavy, suddenly acute at tip, reaching just beyond internal angle of tegmen. Tegmina ferruginous hyaline, base black and punctate, white fascia of body showing through tegmina just behind base. Position of horns somewhat variable. Males smaller and darker than females.

*Female*.—Head subquadrate, black, convex, delicately ridged

rather than punctate, pilose with long golden hairs; eyes prominent, dark brown; ocelli amber-colored, nearly equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes; clypeus large, extending far below inferior margin of face, tip truncate and hirsute.

Pronotum uniformly, closely punctate, densely pubescent, darker on metopidium, suprahumeral horns, and tip of posterior process; median carina percurrent; humeral angles prominent, obtuse; suprahumeral horns thick, heavy, compressed, widely separated at their bases, gradually acute, extending outward and upward with tips slightly curved backward; posterior process short, heavy, sharply carinate above, tip suddenly acute, slightly upraised and extending just beyond internal angles of tegmina.

Tegmina smoky hyaline tinged with ferruginous; base black and punctate; veins distinct and hairy; a white fascia at base of abdomen clearly seen through tegmina.

Legs and undersurface of body very dark chocolate; densely pubescent; knees ferruginous; tibiae closely spined.

Length to tips of tegmina, 7 millimeters; width between extremities of horns, 4.2.

*Male*.—Smaller and darker than female; horns shorter; posterior process not upraised at tip; tegmina uniform dark brown, almost opaque, base black, very little or no white showing through; thighs dark brown, tibiae ferruginous.

Length, 6 millimeters; width, 3.

LUZON, Benguet, Baguio (*Baker*); Nueva Vizcaya, Imugan (*Baker*); 7 males and 2 females.

Type (female) and four paratypes (*Baker's* duplicate Nos. 4910, 4911, 4912, 7638) in my collection; allotype and three paratypes (unnumbered) in Professor *Baker's* collection.

*Tricentrus projectus* Distant.

A female specimen is slightly larger than the described type, but I can find no differences of specific value.

LUZON, Nueva Vizcaya, Imugan (*Baker*).

*Tricentrus laticornis* sp. nov. Plate I, figs. 5 and 6.

Near *T. robustus*, but differing in size, color, and particularly in the structure of the suprahumeral horns.

Uniform light castaneous, thickly covered with bright golden pubescence. Suprahumeral horns very broad and wide-spreading and showing a rough, irregular dorsal carina. Posterior process short, stout, gradually acute, black at tip, reaching just



beyond internal angle of tegmen. Tegmina smoky hyaline, dark brown, punctate and pubescent at base. Legs castaneous; undersurface of body dark brown.

Head subquadrate, dark brown, so thickly covered with short, shining golden hairs as to conceal completely the weak puncturation; eyes prominent, castaneous; ocelli not prominent, concolorous with rest of face, about equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes; clypeus large, convex, extending far below inferior margin of face, tip truncate, somewhat recurved and densely pubescent.

Pronotum uniformly castaneous, densely punctate, pubescent with golden hairs; metopidium convex, slightly darker in color above eyes; median carina distinct and percurrent; humeral angles not prominent, blunt; suprahumeral horns very heavy, broad, extending upward and outward, compressed dorsoventrally with a short, irregular ridge on the upper surface near the posterior margin, extending from the tip two-thirds the distance to the base, anterior and posterior margins of horns sharp, ventral surface bearing a strong carina, the horns about as long as the distance between their bases; scutellum very distinct, dark brown and punctate; posterior process short, heavy, gradually acute, tricarinate, tip black or very dark brown, extending just beyond internal angles of tegmina.

Tegmina smoky hyaline tinged with castaneous, dark brown and punctate at base, base and costal margin somewhat pubescent.

Legs uniformly castaneous, tibiae spined; undersurface of body dark brown; sides of thorax densely pubescent.

Length to tips of tegmina, 6.8 millimeters; width between extremities of suprahumeral horns, 5.

LUZON, Nueva Vizcaya, Imugan (*Baker*).

Type, a female, Baker's duplicate No. 7640.

*Tricentrus fasciipennis* sp. nov. Plate I, figs. 7 and 8.

Slender, dark brown, thickly punctate, densely pubescent, particularly on head, metopidium, and sides of thorax; suprahumeral horns long, slender, sharp, recurved; posterior process long, slender, slightly decurved at tip, extending well beyond internal angles of tegmina; tegmina distinctly banded with brown.

Head subquadrate, nearly as long as broad, thickly covered with long silvery hairs that conceal the slight puncturation; eyes very large and prominent; ocelli grayish brown, not conspicuous, almost equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes;

clypeus very long and slender, extending far below inferior margin of face, tip rounded and hirsute.

Pronotum dark brown, darker below suprahumeral horns, densely punctate and thickly pilose between and below horns; metopidium almost straight; median carina weakly percurrent; humeral angles rounded; suprahumeral horns long, slender, sharp, extending upward, outward, and with tips turned backward, carinate above and below as well as anteriorly and posteriorly; posterior process long, slender, sharp, somewhat sinuate, tricarinate, tip slightly bent downward and extending well beyond the internal angle of tegmen, but not reaching apex.

Tegmina sordid hyaline, base reddish brown and punctate, immediately following base a white band, immediately following this a broad dark brown band, both these bands extending entirely across the tegmen, apical margin slightly bordered with ferruginous.

Undersurface of body and sides of thorax very dark brown, almost black, and thickly pubescent; legs castaneous, femora darker, tibiae spined.

Length to tips of tegmina, 7 millimeters; width between extremities of horns, 4; width between bases of horns, 1.

LUZON, Nueva Vizcaya, Imugan (*Baker*). Described from a unique female specimen in Professor Baker's collection.

#### Genus SIPYLUS Stål

*Sipylus crassulus* Stål.

Add: *Habitat*.—LUZON, Nueva Vizcaya, Imugan (*Baker*).

*Sipylus dilatatus* Walker.

*Centrotus dilatatus* WALKER, List. Hom. Brit. Mus. (1851), 630.74;

FUNKHOUSER, Phil. Journ. Sci., Sec. D (1915), 10, 390.

*Sipylus nodipennis* FUNKHOUSER, Journ. Ent. & Zool. (1914), 6,

72.15, fig. 5; Phil. Journ. Sci., Sec. D (1915), 10, 392, Pl. 2, fig. 15.

*Sipylus dilatatus* DISTANT, Ann. & Mag. Nat. Hist. (1916), VIII, 17, 330.

Mr. Distant has very kindly compared my paratypes of *Sipylus nodipennis* with the type specimen of Walker's *Centrotus dilatatus* in the British Museum and pronounces the species identical. Walker's very meager description of a headless specimen with the omission of certain very necessary data<sup>\*</sup> is perhaps sufficient explanation of the redescription of the species.

Add: *Habitat*.—MINDANAO, Davao (*Baker*).

<sup>\*</sup>Cf. Funkhouser, *This Journal*, Sec. D (1915), 10, 390; and Distant, *Ann. & Mag. Nat. Hist.* (1916), VIII, 17, 330.

*Sipylus acuticornis* sp. nov. Plate I, figs. 9 and 10.

Black with white tomentose patches below eyes and on sides of thorax; humeral angles produced into short, very sharp, prominent horns; posterior process long, slender, extending just beyond internal angles of tegmina; tegmina amber hyaline, base largely and sharply black and punctate; white patch at base of abdomen showing through tegmina.

Head wider than long, convex, black, finely punctate, densely pubescent with golden hairs; eyes large, prominent, brown; ocelli not prominent, yellowish, about equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes; clypeus very much deflexed, extending far below inferior margin of face, tip blunt and hirsute.

Pronotum convex above head, black, punctate, pubescent; humeral angles produced into sharp, prominent horns that extend outward, slightly upward, and very slightly forward; median carina percurrent, faint over metopidium, prominent on posterior process; posterior process slender, dorsal carina sharp, tip somewhat deflexed, extending just beyond internal angles of tegmina.

Tegmina smoky hyaline tinged with amber; base black and punctate and sparingly pubescent, the coriaceous area ending in a definite line; white patch of body showing through tegmina just beyond basal area; tip narrowly margined with ferruginous.

Sides of head and thorax densely covered with white tomentose pubescence.

Legs and undersurface of body uniform deep brown; abdomen and legs densely pilose.

Length to tips of tegmina, 6.5 millimeters; width between extremities of humeral horns, 4. The male is slightly smaller.

LUZON, Nueva Vizcaya, Imugan (*Baker*), 1 female and 1 male.

Type (*Baker's* duplicate No. 7639) in my collection; allotype (unnumbered) in Professor *Baker's* collection.

#### Genus CENTROTOSCELUS Funkhouser

*Centrotoscelus luteus* sp. nov.

Near *C. typus* Funkhouser, but smaller and differing in color and markings.

Yellow, marked with brown, darker below; closely punctate, sparingly pubescent; metopidium strongly convex; posterior process dark brown at tip, extending just to internal angle of tegmen; tegmina concolorous yellow hyaline; humeral angles prominent; no suprahumeral horns; posterior trochanters armed with strong teeth.

Head brown, pubescent with long golden hairs, which conceal the weak puncturation; eyes prominent, brown; ocelli distinct, pearly, placed on slight elevations, somewhat nearer to the eyes than to each other and situated slightly above a line drawn through centers of eyes; clypeus extending far below the inferior margin of face, much deflexed, tip blunt and pilose.

Pronotum yellow, punctate, somewhat pubescent; metopidium very convex; median carina percurrent; humeral angles prominent; posterior process heavy, tip sharp, brown, and carinate above. Scutellum distinct, brown. Extremity of posterior process just reaching internal angle of tegmen.

Tegmina uniformly yellow hyaline, somewhat opaque and punctured at base.

Undersurface of thorax black with more or less white pubescence; abdomen brown; legs concolorous ferruginous-yellow; hind trochanters having strong teeth on inner sides.

Length to tips of tegmina, 5 millimeters; width between humeral angles, 2.5.

LUZON, Benguet, Baguio (*Baker*), 3 females and 2 males.

Type (female No. 6308) and two paratypes (*Baker's* duplicate Nos. 6308, 6309, and 6315) in my collection; allotype and paratype (unnumbered) in Professor *Baker's* collection.

*Centrotoscelus concavus* sp. nov. Plate I, figs. 11 and 12.

Dark rusty brown in females; black in males; punctures so fine as to be seen only with high magnification; sparingly and irregularly pubescent; pronotum concave above scutellum; metopidium marked with broad median black band; tegmina sordid white marked with brown, hardly transparent.

Head subquadrate, very convex, black; very finely punctate, sparingly pubescent with golden hairs; eyes prominent, brown; ocelli brown, nearer to the eyes than to each other and situated high on the head, well above a line drawn through centers of eyes; clypeus long, deflexed, extending far below inferior margin of face, tip slightly curved outward and sparingly pubescent.

Pronotum dark chocolate, very minutely punctate and sparingly pubescent; metopidium very convex with wide median band of black or dark brown; dorsum deeply depressed in middle; posterior process short, blunt, carinate above, tip darker in color and barely reaching to internal angles of tegmina.

Tegmina sordid yellow-white marked with brown, translucent rather than transparent; base ferruginous, punctate and weakly pubescent; brown marking sometimes extended in a rather reg-

ular and distinct band across tegmen below tip of posterior process.

Sides of thorax covered with white tomentose patch that is not distinct in all cabinet specimens.

Undersurface of body dark brown or black; legs uniform ferruginous; trochanters strongly spined.

Length to tips of tegmina, 5 millimeters; width between humeral angles, 2.3.

*Male*.—Darker and more slender than the female and with markings of tegmina more distinct.

LUZON, Benguet, Baguio (*Baker*); Nueva Vizcaya, Imugan (*Baker*); 3 females and 1 male.

Type (a female) and paratype (unnumbered) in Professor Baker's collection; allotype (*Baker's* duplicate No. 7642) and paratype in my collection.

#### Genus GARGARA Amyot and Serville

*Gargara nigrofasciata* Stål.

Add: *Habitat*.—MINDANAO, Davao and Dapitan (*Baker*).

*Gargara nitidipennis* Funkhouser.

Add: *Habitat*.—MINDANAO, Davao and Iligan (*Baker*); LUZON, Benguet, Baguio (*Baker*).

*Gargara pygmaea* Walker.

Add: *Habitat*.—MINDANAO, Davao (*Baker*).

*Gargara tuberculata* Funkhouser.

Add: *Habitat*.—MINDANAO, Davao and Zamboanga (*Baker*); LUZON, Tayabas, Malinao (*Baker*).

*Gargara varicolor* Stål.

Add: *Habitat*.—MINDANAO, Davao (*Baker*).

*Gargara pulchripennis* Stål.

Add: *Habitat*.—MINDANAO, Davao (*Baker*).

*Gargara patruelis* Stål.

Add: *Habitat*.—MINDANAO, Davao (*Baker*).

*Gargara nigrocarinata* Funkhouser.

Add: *Habitat*.—LUZON, Benguet, Baguio (*Baker*).

*Gargara maculipennis* sp. nov. Plate I, figs. 13 and 14.

Small, robust, dark brown species with tegmina beautifully decorated with brown and white; posterior process of pronotum

tectiform and not quite reaching the apical angles of the tegmina; sides of thorax white tomentose.

Head subquadrate, black, finely punctate, densely pubescent with golden hairs; eyes prominent, brown; ocelli small, not prominent, pearly, much nearer to the eyes than to each other and situated well above a line drawn through centers of eyes; clypeus longer than wide, pubescent, tip rounded and extending far below the inferior margin of the face.

Pronotum very dark brown or black, finely punctate, pubescent with golden hairs; metopidium convex; median dorsal carina faintly percurrent; humeral angles prominent, obtuse; dorsum depressed in middle; posterior process short, thick, heavy, sharply carinate and elevated above, tip acute, extending not quite to the internal angles of tegmina.

Tegmina hyaline, much wrinkled, which causes the hyaline areas to appear whitish, marked with brown areas particularly at base, just below middle of posterior process, internal margin before apex, apex itself, and middle of costal margin; base punctate.

Sides of thorax covered with white tomentose patch; under-surface of body very dark brown or black; legs luteous; claws ferruginous.

Length to tips of tegmina, 4 millimeters; width between humeral angles, 1.8.

LUZON, Benguet, Baguio (*Baker*), 3 males.

Type (a male, Baker's duplicate No. 6311) and paratype (No. 6310) in my collection; paratype (unnumbered) in Professor Baker's collection.

*Gargara pinguis* sp. nov. Plate I, figs. 15 and 16.

Heavy, robust, thick-bodied, dark brown marked with black, punctate, pubescent, posterior process decurved at tip and extending well beyond internal angle of tegmen, tegmina very dark with apical margin lighter.

Head very convex, nearly perpendicular, black, thickly pubescent with fine golden hairs, which largely conceal the weak puncturation; eyes prominent, gray-black; ocelli small, pearly, nearer to the eyes than to each other and situated well above a line drawn through centers of eyes; inferior margin of face smooth, rounded; clypeus long, extending well below inferior margin of face, reflexed, tip rounded and hirsute.

Pronotum dark brown marked with black, densely and closely punctate, finely pubescent; metopidium sloping; median carina

weakly percurrent; humeral angles prominent, obtuse; posterior process nearly straight, except tip, which is decurved and closely pressed against abdomen, extending well beyond internal angle of tegmen, but not reaching its apex, tip darker with sometimes a lighter area before it.

Tegmina very dark, appearing almost opaque on account of the black abdomen showing through; base coriaceous and punctate; apex smoky hyaline, just reaching tip of abdomen.

Sides of thorax pubescent; undersurface of thorax and head black; undersurface of abdomen deep brown with venter jet black; femora black; knees and tibiae ferruginous; tarsi and claws brown.

Length to tips of tegmina, 4.2 millimeters; width between humeral angles, 2.1.

MINDANAO, Zamboanga (*Baker*), 3 females.

Type (a female, Baker's duplicate No. 7643) in my collection; two paratypes (unnumbered) in Professor Baker's collection. One of these paratypes is from Davao, Mindanao.

*Gargara rugonervosa* sp. nov.

Small, robust, rough, black, veins of tegmina very prominent and nodulate; posterior process somewhat sinuate, extending just beyond internal angle of tegmen; tegmina uniform black with raised and tuberculate veins; legs black; tarsi light yellow.

Head wider than long, solid black, finely punctate, sparingly pubescent; upper (basal) margin sinuate; eyes black, not prominent; ocelli very small, pearly, nearer to the eyes than to each other and situated slightly above a line drawn through centers of eyes; clypeus strongly reflexed, extended well below inferior margin of face, tip smooth, rounded.

Pronotum rough, concolorous black, finely and densely punctate, sparingly pubescent; median carina strongly percurrent; metopidium nearly vertical; humeral angles prominent; posterior process somewhat sinuate, tip slightly decurved and extending just beyond internal angle of tegmen.

Tegmina dull black, base and veins shining black; base punctate; veins raised and decorated with large nodules.

Undersurface of body and all parts of legs black except tarsi, which are yellowish white.

Length to tips of tegmina, 3 millimeters; width between humeral angles, 1.5.

LUZON, Nueva Vizcaya, Imugan (*Baker*), 2 females and 1 male.

Type (a female) and paratype in Professor Baker's collection; allotype (Baker's duplicate No. 4907) in my collection.

*Gargara irrorata* sp. nov.

Small, female golden yellow marked with brown, male brown marked with darker brown; posterior process sinuate; tegmina opaque marked with brown and white; eyes strongly tinged with red; legs yellow.

*Female (type).*—Head dark brown, nearly black, convex, deflexed, very finely punctate, sparingly pubescent; eyes prominent, yellow with strong tinge of red; ocelli small, pearly, distinct, slightly nearer to the eyes than to each other and situated a little above a line passing through centers of eyes; clypeus strongly deflexed, black, tip extending far below inferior margin of face.

Pronotum bright yellow with brown markings on metopidium and apex of posterior process, very finely and closely punctate, sparingly pubescent; metopidium sloping, a brown mark on each side of median line and another above each eye; humeral angles prominent, blunt; median carina strongly percurrent and sharply elevated; posterior process strong, tectiform, decidedly sinuate, tip brown, extending just beyond internal angle of tegmen.

Tegmina opaque, base brownish yellow and punctate, rest of tegmen marked with alternate broad bands of brown and white, tip broad and very slightly hyaline.

Undersurface of body deep brown, slightly pubescent; legs yellow.

Length to tips of tegmina, 3.2 millimeters; width between humeral angles, 1.7.

*Male.*—Smaller, darker, more pubescent, general color cinnamon with markings of chocolate; arrangement of markings about the same as in female; tegmina black and punctate at base, markings of brown and white not so uniformly in bands as in female.

LUZON, Benguet, Baguio (*Baker*), 1 female and 1 male.

Type (a female) in Professor Baker's collection; allotype in my collection.

#### Genus *CRYPTASPIDIA* Stål

This genus can be best distinguished from *Gargara* by the fact that in *Cryptaspidia* the scutellum is always entirely concealed, while in *Gargara* it is always plainly visible at the basal sides of the posterior process.



*Cryptaspidia tagalica* Stål.

Add: *Habitat*.—BASILAN (Baker).

*Cryptaspidia obtusiceps* Stål.

I am determining a single specimen from Davao, Mindanao (Baker's duplicate No. 6472), as this species, which has not been recognized before. If it is not the identical form, it must be very close to it indeed; and it seems desirable to list it, at least tentatively, under this name.

It is a fine, large insect, 7 millimeters in length and 3.5 across the humeral angles (Stål's maximum measurements), shining black, coarsely punctate, very sparingly pubescent, the median carina almost obsolete, the posterior process strongly decurved and sharply tricarinate at the tip. The head is nearly flat, a character given by Stål as specific.

*Cryptaspidia nigris* sp. nov. Plate I, figs. 17 and 18.

Uniform shining black, except the apical two-thirds of the tegmina and the tarsi, which are ferruginous; coarsely punctured, sparingly pubescent; eyes reddish; posterior process strong, heavy, carinate, gradually acute, extending well beyond the internal angle of tegmen and almost to tip of abdomen; scutellum entirely concealed by pronotum; clypeus fused with genæ.

Head wider than long, shining black, impunctate, sparingly pubescent with golden hairs; basal (upper) margin of head sinuate; eyes large, projecting, reddish; ocelli distinct, pearly, slightly nearer to the eyes than to each other and situated slightly above a line drawn through centers of eyes; clypeus not clearly set off by sutures but apparently fused with genæ, tip arcuate, not projecting below the inferior margin of face but forming a part of the unbroken semicircle connecting the eyes as seen from a strictly cephalic view.

Pronotum shining black, coarsely punctured except in front, sparingly pubescent; metopidium sloping, smooth, impunctate, shining; median carina not percurrent; humeral angles prominent, rounded, posterior process gradually acute, wide at base, completely concealing scutellum, tip tricarinate, sharp, somewhat decurved, extending well beyond internal angle of tegmen and almost as far as tip of abdomen but not reaching tip of tegmina.

Tegmina smoky hyaline tinged with ferruginous except at base and basal third of costal margin, which are entirely coriaceous, jet black and punctured.

Legs and undersurface of body black; tarsi and claws light ferruginous.

Length to tips of tegmina, 6 millimeters; width between humeral angles, 3.

LUZON, Tayabas, Mount Banahao (*Baker*), a pair.

Type (female) in Professor Baker's collection; allotype in my collection.

With the foregoing revisions and additions, the check list of the family Membracidae, as represented in the Philippine Islands, is brought up to date with the synonymy indicated as follows:

- |  |   |
|--|---|
| 1. <i>Xanthostieta grisea</i> Buckt.     | <i>Centrotus rupicapra</i> Fabr.          |
| <i>Bolbonota grisea</i> Buckt.           | <i>Centrotus taurus</i> Fabr.             |
| 2. <i>Xanthostieta luzonica</i> Buckt.   | <i>Membracis tricornis</i> Hardw.         |
| <i>Bolbonota luzonica</i> Buckt.         | <i>Centrotus terminalis</i> Walk.         |
| 3. <i>Xanthostieta trivialis</i> Buckt.  | <i>Centrotus vicarius</i> Walk.           |
| <i>Bolbonota trivialis</i> Buckt.        | <i>Leptocentrus gazella</i> Buckt.        |
| 4. <i>Centrochares horrificus</i> West.  | 18. <i>Leptocentrus leucaspis</i> Walk.   |
| <i>Centrotus horrificus</i> West.        | <i>Centrotus taurus</i> (in part:         |
| <i>Pterygid horrificus</i> Walk.         | error) Walk.                              |
| <i>Pterygia spinula</i> Buckt.           | <i>Centrotus leucaspis</i> Walk.          |
| 5. <i>Centrochares posticus</i> Buckt.   | 19. <i>Leptocentrus reponens</i> Walk.    |
| <i>Pterygia postica</i> Buckt.           | <i>Centrotus reponens</i> Walk.           |
| <i>Centrochares horrificus</i> (in       | <i>Centrotus antilope</i> Stål.           |
| part) Funkh.                             | <i>Leptocentrus antilope</i> Stål.        |
| 6. <i>Centrochares bucktoni</i> Dist.    | 20. <i>Centrotypus aduncus</i> Buckt.     |
| <i>Pterygia postica</i> ♀ Buckt.         | <i>Leptocentrus aduncus</i> Buckt.        |
| 7. <i>Pyrgonota bifoliata</i> West.      | 21. <i>Emphusis bakeri</i> Funkh.         |
| <i>Centrotus bifoliata</i> West.         | 22. <i>Ibiceps erigens</i> Walk.          |
| <i>Smilia bifoliata</i> West.            | <i>Centrotus erigens</i> Walk.            |
| <i>Hypsauchenia westwoodi</i>            | <i>Sertorius erigens</i> Stål.            |
| Fairm.                                   | 23. <i>Ibiceps mounseyi</i> Dist.         |
| <i>Hypsauchenia bifoliata</i> Fairm.     | 24. <i>Perlaman brevifrons</i> Funkh.     |
| <i>Hypsauchenia bifasciata</i>           | 25. <i>Tricentrus convergens</i> Walk.    |
| Walk.                                    | <i>Centrotus convergens</i> Walk.         |
| 8. <i>Pyrgonota tumida</i> Stål.         | 26. <i>Tricentrus fairmairei</i> Stål.    |
| 9. <i>Pyrgonota philippina</i> Stål.     | <i>Centrotus fairmairei</i> Stål.         |
| 10. <i>Pyrgonota bifurca</i> Stål.       | <i>Terentius fairmairei</i> (error)       |
| 11. <i>Pyrgonota semperi</i> Stål.       | Buckt.                                    |
| 12. <i>Pyrgonota pinguiturris</i> Funkh. | <i>Taloipa tinctoria</i> Buckt.           |
| 13. <i>Pyrgonota longiturrus</i> Funkh.  | 27. <i>Tricentrus capreolus</i> Walk.     |
| 14. <i>Leptobelus dama</i> Germ.         | <i>Centrotus capreolus</i> Walk.          |
| <i>Centrotus dama</i> Germ.              | 28. <i>Tricentrus pilinervosus</i> Funkh. |
| 15. <i>Lobocentrus zonatus</i> Stål.     | 29. <i>Tricentrus plicatus</i> Funkh.     |
| 16. <i>Dograna falco</i> Buckt.          | 30. <i>Tricentrus attenuatus</i> Funkh.   |
| <i>Campylocentrus falco</i> Buckt.       | 31. <i>Tricentrus orcus</i> Buckt.        |
| 17. <i>Leptocentrus taurus</i> Fabr.     | <i>Centrotus orcus</i> Buckt.             |
| <i>Cicada taurus</i> Linn.               | 32. <i>Tricentrus robustus</i> Funkh.     |
| <i>Membracis taurus</i> Fabr.            | 33. <i>Tricentrus projectus</i> Dist.     |
| <i>Membracis rupicapra</i> Fabr.         | 34. <i>Tricentrus laticornis</i> Funkh.   |

35. *Tricentrus fasciipennis* Funkh.
36. *Centrotus magellani* Fairm.
37. *Sipylus crassulus* Stål.  
*Centrotus crassulus* Stål.
38. *Sipylus dilatatus* Walk.  
*Centrotus dilatatus* Walk.  
*Sipylus nodipennis* Funkh.
39. *Sipylus acuticornis* Funkh.
40. *Centrotoscelus typus* Funkh.
41. *Centrotoscelus luteus* Funkh.
42. *Centrotoscelus concavus* Funkh.
43. *Ebhul carinatus* Funkh.
44. *Gargara luconica* Fairm.  
*Membracis luconica* Fairm.  
*Enchenopa luconica* Walk.
45. *Gargara pygmaea* Walk.  
*Centrotus pygmaeus* Walk.
46. *Gargara patruelis* Stål.  
*Centrotus patruelis* Stål.
47. *Gargara varicolor* Stål.
48. *Gargara pulchripennis* Stål.
49. *Gargara nigrofasciata* Stål.
50. *Gargara tuberculata* Funkh.
51. *Gargara luteipennis* Funkh.
52. *Gargara nitidipennis* Funkh.
53. *Gargara nigrocarinata* Funkh.
54. *Gargara brunnea* Funkh.
55. *Gargara trifoliata* Funkh.
56. *Gargara maculipennis* Funkh.
57. *Gargara pinguis* Funkh.
58. *Gargara rugonervosa* Funkh.
59. *Gargara irrorata* Funkh.
60. *Cryptaspidia pubera* Stål.
61. *Cryptaspidia tagalica* Stål.
62. *Cryptaspidia impressa* Stål.
63. *Cryptaspidia obtusiceps* Stål.
64. *Cryptaspidia nigris* Funkh.

## ILLUSTRATION

### PLATE I

- FIG. 1. *Pyrgonota longiturrus* sp. nov., lateral outline.  
2. *Pyrgonota longiturrus* sp. nov., frontal outline.  
3. *Tricentrus robustus* sp. nov., lateral outline.  
4. *Tricentrus robustus* sp. nov., frontal outline.  
5. *Tricentrus laticornis* sp. nov., dorsal outline.  
6. *Tricentrus laticornis* sp. nov., frontal outline.  
7. *Tricentrus fasciipennis* sp. nov., lateral outline.  
8. *Tricentrus fasciipennis* sp. nov., frontal outline.  
9. *Sipylus acuticornis* sp. nov., lateral outline.  
10. *Sipylus acuticornis* sp. nov., frontal outline.  
11. *Centrotoscelus concavus* sp. nov., lateral outline.  
12. *Centrotoscelus concavus* sp. nov., frontal outline.  
13. *Gargara maculipennis* sp. nov., lateral outline.  
14. *Gargara maculipennis* sp. nov., frontal outline.  
15. *Gargara pinguis* sp. nov., lateral outline.  
16. *Gargara pinguis* sp. nov., frontal outline.  
17. *Cryptaspidia nigris* sp. nov., lateral outline.  
18. *Cryptaspidia nigris* sp. nov., frontal outline.

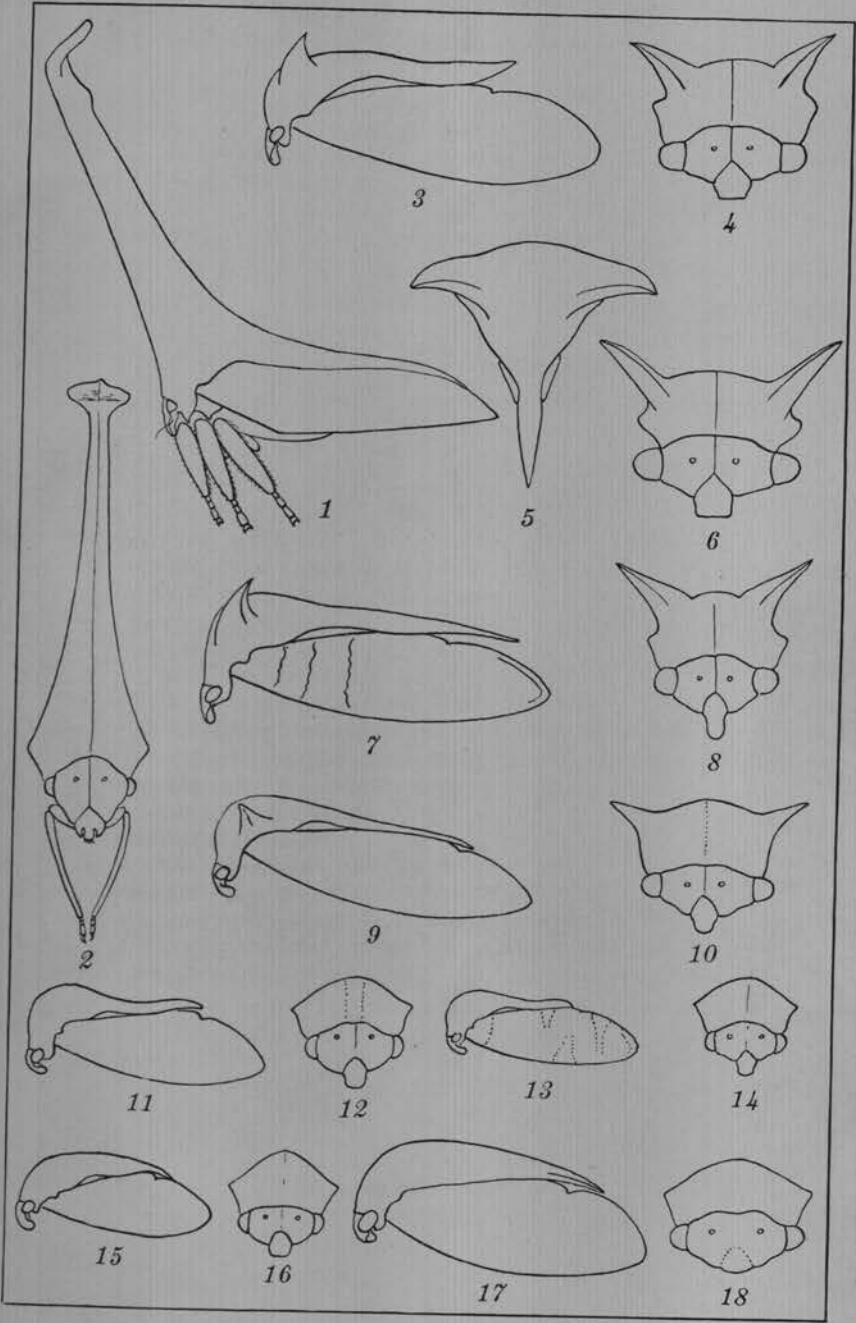


PLATE I. PHILIPPINE MEMBRACIDÆ.

## REVIEWS

Leland Stanford Junior University Publications | university series | *The Genera of Fishes* | from Linnæus to Cuvier, 1758-1833, seventy-five years, | with the accepted type of each. | A contribution to the stability of scientific nomenclature. | By | David Starr Jordan | assisted by | Barton Warren Evermann | Stanford University, California | published by the University | 1917 | Paper, 1-161. Price, \$1.

This publication considers the status of the genera of fishes that have been proposed in 164 publications by one hundred and odd authors, beginning with the tenth edition of the *Systema* of Linnæus, 1758, and ending with the *Poissons Fossiles* of Louis Agassiz, 1833.

The object of the work has been the fixation of the generic types and, incidentally, the determination of the validity of the genera treated. Doctor Jordan very appropriately calls attention to the fact that "efforts to secure stability in nomenclature by fiat," using names more or less current, without serious regard to the law of priority, should be resisted. "To accept this plan would merely accentuate the confusion already existing and which has arisen through just such disregard of fundamental rules." The generic names, with their types, proposed by each author are listed under the respective publications. Notes on the status of publications, names, and synonyms, and much other information that will be of help to the Commission of the International Congress of Zoology when it undertakes to rule on the status of these various genera are given.

R. C. MCG.

*Population of the Philippine Islands in 1916* | (*Población de las Islas Filipinas en 1916*) | Prepared under the direction of | Preparado bajo la dirección de | H. Otley Beyer | Assistant Professor of Anthropology, University of | the Philippines, and Curator, Bureau | of Science Museum. | [ornament] | Manila | Philippine Education Co., Inc. | 1917 | pp. 1-95. Full blue cloth, ₱1.60; paper, ₱1.10. Extra, if to be sent by mail, ₱0.15.

The book is printed in English and Spanish side by side. The Spanish translation is well rendered, and the text is unusually free from typographical errors.

In the introduction on page 17 the author states that there are several Tagalog dialects. The example he cites of the difference in the spoken Tagalog of Batangas from that of Bulacan

is merely a slight difference in the accent and it is perfectly understood by the Tagalogs of the other provinces.

Table I gives the different ethnographic groups arranged alphabetically. Other tables are given classifying the inhabitants according to religious belief and economic and social progress, and there is also a list of the different languages and dialects spoken in the Philippines.

Tables IX and X are of special local interest. Table IX gives the population of the 12 senatorial districts, and Table X, the population corresponding to each representative in the different provinces. The suggestion of the author of redistricting the Islands deserves careful consideration.

Part II gives the location, the number, customs, industry, etc., of the different ethnographic groups arranged alphabetically. This arrangement makes reference easy.

In view of the settled conditions now prevailing in those portions of the Philippines inhabited by the non-Christian population, I believe that the author's estimate of them is more accurate than those given in the census of 1903.

F. D. REYES.

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